

## **HANGING PLANT IRRIGATION SYSTEM**

### **DESCRIPTION**

**[Para 1]            Related Applications:**        This application is a continuation of serial number 10/711,010, filed on August 17, 2004, pending.

**[Para 2]            Field of the Invention:**        This invention relates to the field of watering systems for plants, and particularly to the field of overhead hanging plant display watering system.

#### **[Para 3]        Background of the Invention**

**[Para 4]**            Garden centers, nurseries, florists and other places where flowers, plants and trees are sold or displayed use display stands for the display of those plants. These display stands may be simply tables, but can also be designed not only to display the plants but to provide watering for those plants as well.

**[Para 5]**            Many garden centers, nurseries, florists, etc. use hanging displays to display their plants. Since display space is at a premium, it is often useful to combine the display stands and hanging displays.

**[Para 6]**        The display of plants requires frequent watering of these plants to maintain their appearance. Often, it is difficult to maintain a regular schedule of watering due to staffing, shifts, temperature and humidity fluctuations and other problems. Further, hand watering of the plants is often uneven, not only in time but in amount as well. This can lead to deterioration of the plants. Automated watering systems have been used in the past, but these tend to be expensive and complicated to operate.

**[Para 7]**            Overhead systems have been used in the past to periodically water plants. These systems spray or spray water over plants, produce or other items to keep such items moist and watered. These systems are used not only for watering plant displays but also in produce sections of food

supermarkets. However these systems tend to be plastic perforated piping and are not used for plant displays.

[Para 8] Self watering planters have been developed to address these issues. However, the typical self watering planter is designed for an individual plant, thus requiring special planters for each individual plant. This can be quite expensive for large displays. Also, this limits the choices available for the individual plants in regard to color, size, shape, etc. for the displays. The self watering planters must also be connected to a water supply, thus increasing the expense and limiting the arrangement of the display.

[Para 9] Thus a need exists for a plant watering system for providing even distribution of water to plants as well as displaying the plants as well.

#### [Para 10] Summary of the Invention

[Para 11] The present invention provides solutions to these and other needs by providing a display structure for use in garden centers, nurseries as well as other retail centers.

[Para 12] In a preferred embodiment of the present invention, the display structures provide a special elongated beam for supporting hanging plants. The beam also includes an integrated channel for holding a spraying tube for watering plants.

[Para 13] In another embodiment of the present invention, the system provides a self watering system for display structures for plants. The system of the present invention provides a watering system for an attractive display for retail and wholesale sales of plants. The system of a preferred embodiment of the present invention allows plants to self water and maintain themselves without the intervention of workers.

[Para 14] The system of a preferred embodiment provides a self watering system that is clean and attractive and does not detract from the display of the plants. The self watering system is partially hidden and non-obtrusive to the customer's shopping experience.

[Para 15] The system of a preferred embodiment is simple and does not require expensive controls or equipment that would require constant

maintenance. Once the system is setup, it is simple to maintain and only occasionally requires maintenance.

[Para 16] These and other features of the present invention are evident from the ensuing description of preferred embodiments and from the drawings.

#### **[Para 17] Brief Description of the Drawings**

[Para 18] Figure 1 illustrates a display structure for plants of a preferred embodiment of the present invention.

[Para 19] Figure 2 illustrates an end view of the display structure of the embodiment of Figure 1.

[Para 20] Figure 3 is a cut away view of the support beam of a preferred embodiment of the present invention.

[Para 21] Figure 4 is a perspective view of the support beam of the embodiment of Figure 3.

[Para 22] Figure 5 is an end view of the support beam of the embodiment of Figure 3.

[Para 23] Figure 6 is an end view of the support beam system of the embodiment of Figure 3.

#### **[Para 24] Detailed Description of Preferred Embodiments**

[Para 25] The present invention provides a system for providing an attractive display system for plants that also allows for the watering of plants. It is to be expressly understood that the descriptive embodiments set forth herein are intended for explanatory purposes and is not intended to unduly limit the scope of the claimed inventions. Other embodiments and applications not described herein are considered to be within the scope of the invention. It is also to be expressly understood that while specific embodiments for the components of the system are discussed, other equivalents to these embodiments that perform substantially similar functions are within the scope of the claimed inventions.

[Para 26] A preferred embodiment of the present invention is illustrated in Figures 1 – 6. The display stand 10 of this embodiment includes a rigid frame 20 having vertical members 22, 24, 26, 28 mounted on a lower base stand 30. The preferred embodiment of the present invention includes a spraying hanging beam 200, shown in Figures 1 – 6. The beam 200, as shown in greater detail in Figures 3 – 6, includes an extruded aluminum elongated section 202. The beam 200 is open on the lower end 204 to allow access to irrigation parts 206, 208 formed on the inside upper portion of the beam. The irrigation parts 206, 208 are spaced apart sufficiently to receive an irrigation pipe with nozzles. Spacers 218 prevent the irrigation pipe from being inserted too far into the beam. Detents 216 assist in preventing the irrigation pipe from accidentally dropping out of the beam. The irrigation pipe 220, as is well known in plant and produce displays, includes a series of spaced nozzles that are sized to cause water under pressure to spray over the displays. The resilient nature of the beam and the detents 216 interact with the irrigation parts to secure the irrigation pipe in the beam, or the irrigation parts may be slightly angled inward to secure the irrigation pipe.

[Para 27] The upper outside portion 210 of the beam 200 provides a support for hanging plants, as shown in Figure 3. The structural integrity of the beam 200 is able to carry the weight of a plurality of hanging baskets filled with plants. The spraying action from the nozzles on the irrigation pipe provides water and humidity for the plants that are hung from the support beam 200.

[Para 28] It is to be expressly understood that the support beam has utility separately from the above described embodiments of display stands as well as the below described watering system. It may be used alone or in combination with other display mechanisms.

[Para 29] In this preferred embodiment, the beam 200 is attached to the lower or side surface of a display case, such as display cases 90, 92. This allows the support beam to support a number of hanging baskets, providing spraying and watering to those plants as well as providing spraying to plants on the display cases 70, 72 and 82. The angled surfaces 212, 214 and the

upper surface on the outer surfaces of the beam provide mounting surfaces onto the lower surface of the display cases 90, 92 or underneath cabinets, produce displays or many other structures.

[Para 30] It is to be expressly understood that the beam 200 may be used in many other applications as well. For example, the beam may be secured to permanent displays or even to produce displays such as in supermarkets. The beam may also be used inside coolers or other locations where plants may be displayed. The beam may be used alone, or in combinations with other types of plant displays.

[Para 31] The irrigation pipe and nozzles are connected to a supply pipe for providing water to the nozzles. A timer may be used to periodically supply water to the system at timed intervals.

[Para 32] In an alternative preferred embodiment, the nozzles 222 of the irrigation pipe 220, shown in Figure 5 are clipped in place either by the design of the nozzle or through detents on the beam 200 to prevent accidental displacement of the nozzles as plants are removed and replaced on the beam. The nozzles may be adjusted side to side to allow flow of the water over the plants, but in a preferred embodiment, the nozzles are prevented from moving front to back respective to a person standing in front of the display. In other embodiments, the nozzles may be removable or otherwise adjustable.

[Para 33] The use of the system of the present invention enables the plants to be self watering in an attractive and clean environment. There is no need for special containers or special equipment beyond the system as discussed above. The system allows plants to be displayed in an attractive manner in a healthy environment without the constant intervention of workers.

[Para 34] It is to be expressly understood that while the above described embodiment sets forth a particular embodiment, other embodiments may be used as well to provide a combination of a watering or spraying tube with a hanging plant display. For example, the beam 200 may include an external attachment for securing the spraying tube to the outside of the beam. Also, the beam may be formed from sheet metal, structural plastic, or any other suitable material.

**[Para 35]** It is to be expressly understood that other embodiments of the present invention are included in the claims. The above explanatory embodiments are provided for descriptive purposes only.